



**Legend**

Bankfull Channel

1200 0 600 1200

2	10-14-05	KLC	FINAL
1	04-13-05	MSD	DRAFT
NO.	DATE	BY	REVISION DESCRIPTION

**PLAN VIEW INDEX**

**RESTORATION PLAN**

DRAWN BY:	NMW	<b>SHEET INDEX</b>
DESIGNED BY:	GTD	
CHECKED BY:	MSD	
PROJECT NO.:	RDG-04-018	

FILE NAME:
design plan view.dwg

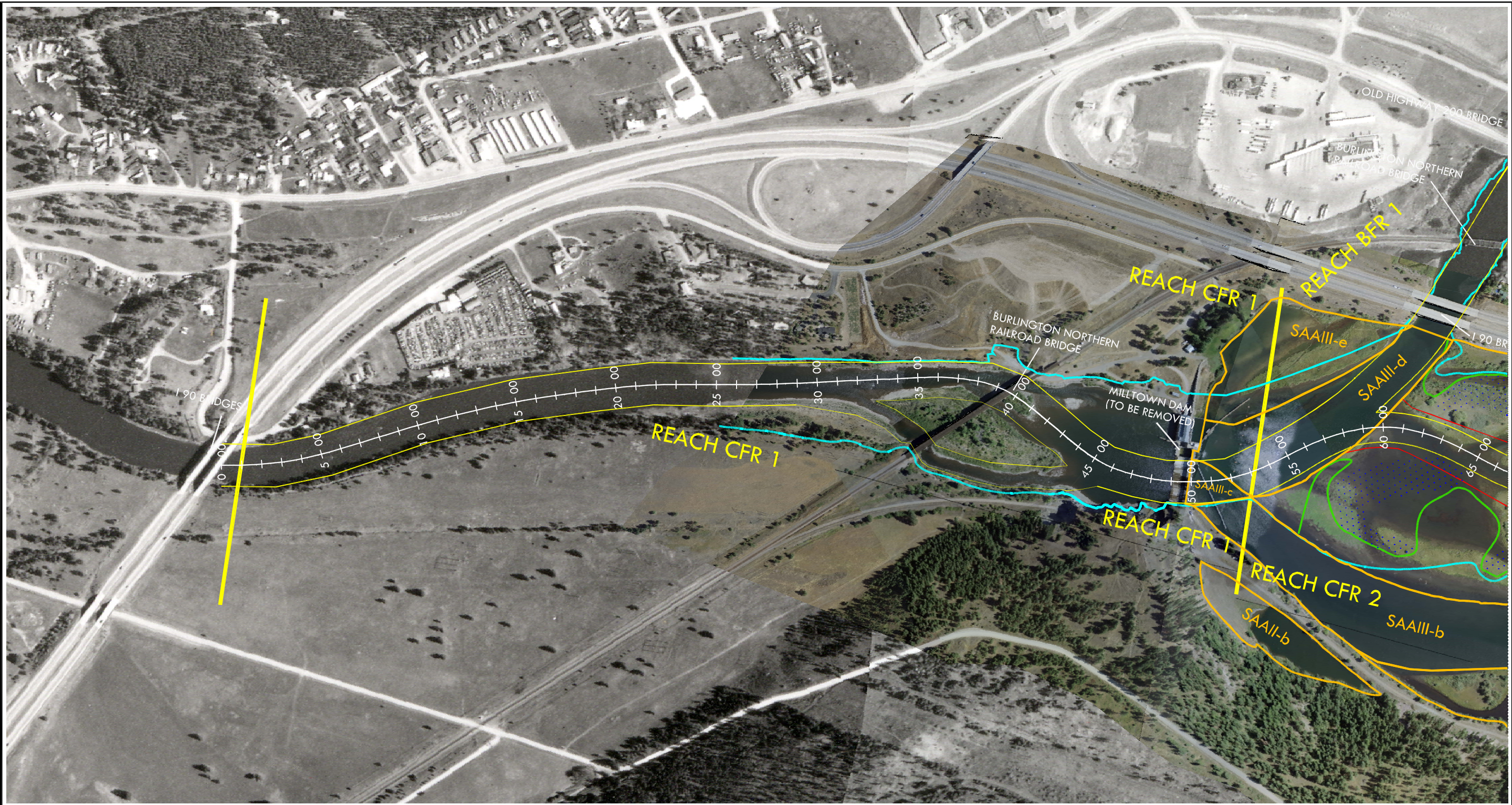
WestWater Consultants, Inc.  
1112 Catherine Lane  
Corvallis, MT 59828  
tel: (406) 961-3348

WestWater Consultants, Inc.

River Design Group, Inc.  
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www.riverdesigngroup.net

RIVER DESIGN GROUP, INC.





**Legend**

- Wetlands
- Bankfull Channel
- Bankfull Floodplain
- Approximate 100 yr Floodplain
- Low Terrace
- SAA Sediment Accumulation Areas

500 0 250 500

SCALE: 1" = 500'

NO.	DATE	BY	REVISION DESCRIPTION
2	10-14-05	KLC	FINAL
1	04-13-05	MSD	DRAFT

**PLAN VIEW - CFR 1**

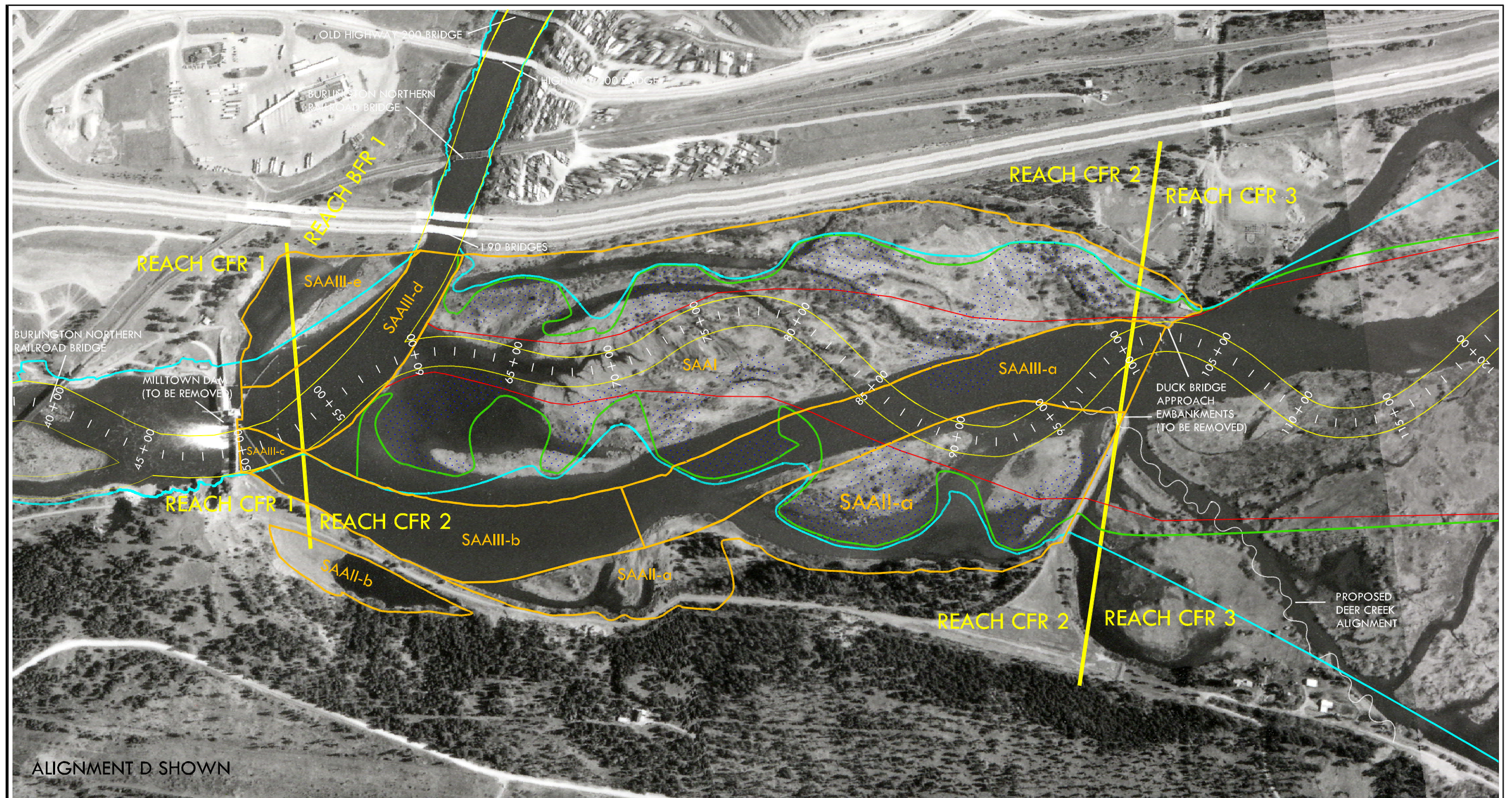
**RESTORATION PLAN**







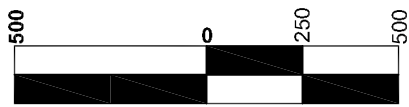


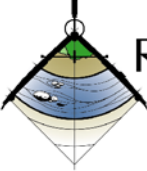
DRAWN BY:	NMW	<b>SHEET I-1</b>	
DESIGNED BY:	GTD		
CHECKED BY:	MSD	FILE NAME:	
PROJECT NO.:	RDG-04-018	design plan view.dwg	

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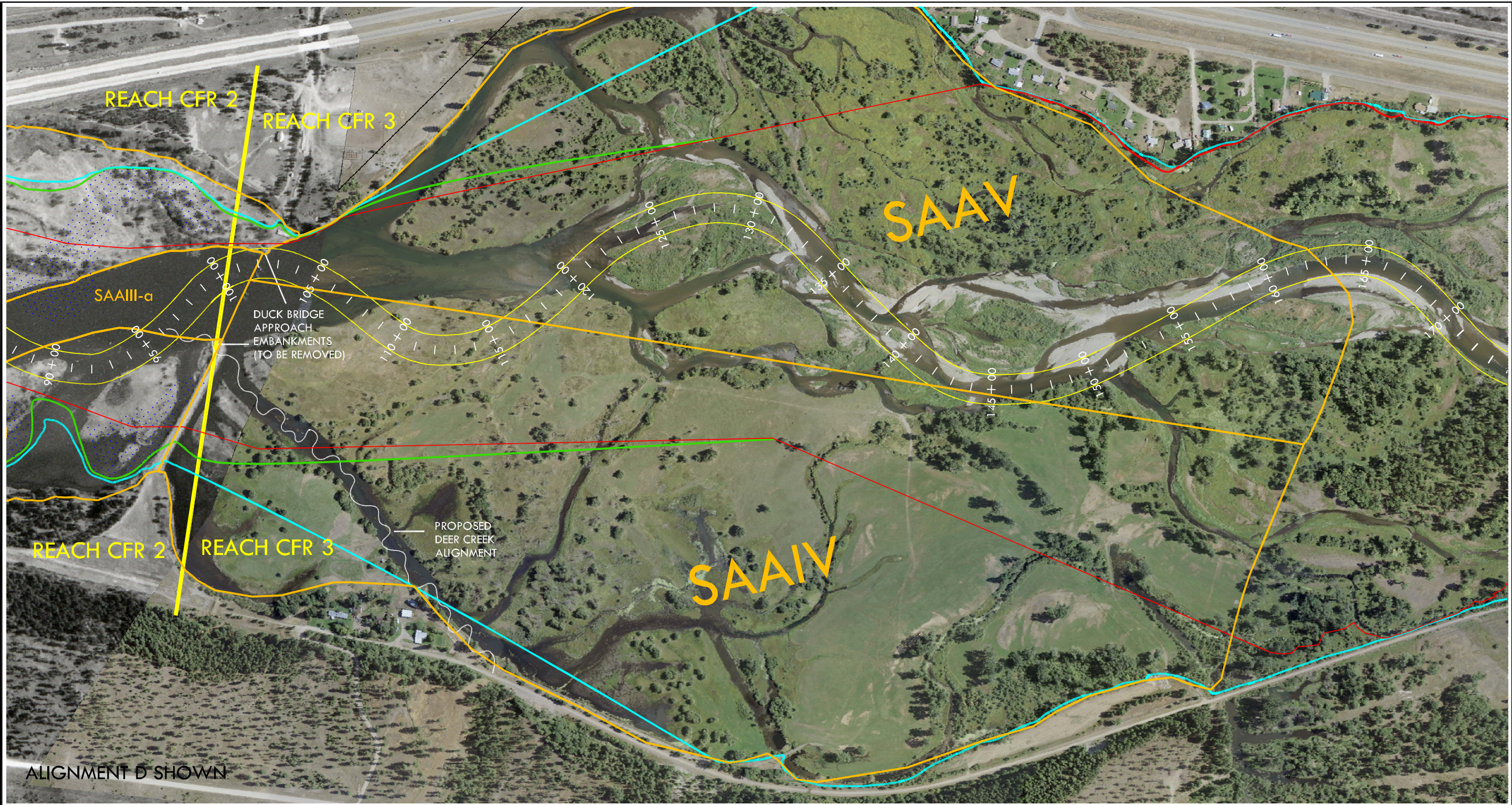
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<b>Legend</b>  Wetlands  Bankfull Channel  Bankfull Floodplain  Approximate 100 yr Floodplain  Low Terrace  SAA Sediment Accumulation Areas				 SCALE: 1" = 500'		<b>PLAN VIEW - CFR 2</b>			<b>WestWater Consultants, Inc.</b> 1112 Catherine Lane Corvallis, MT 59828 tel: (406) 961-3348		 <b>WestWater Consultants, Inc.</b>																
						<b>RESTORATION PLAN</b>																					
<table border="1"><thead><tr><th>NO.</th><th>DATE</th><th>BY</th><th>REVISION DESCRIPTION</th></tr></thead><tbody><tr><td>3</td><td>10-14-05</td><td>KLC</td><td>FINAL</td></tr><tr><td>2</td><td>08-29-05</td><td>MSD</td><td>ALIGNMENT D SHOWN</td></tr><tr><td>1</td><td>04-13-05</td><td>MSD</td><td>DRAFT</td></tr></tbody></table>				NO.	DATE	BY	REVISION DESCRIPTION	3	10-14-05	KLC	FINAL	2	08-29-05	MSD	ALIGNMENT D SHOWN	1	04-13-05	MSD	DRAFT	DRAWN BY:	NMW	<b>SHEET I-2</b>		<b>River Design Group, Inc.</b> P.O. Box 1722 Whitefish, MT 59937 tel: (406) 862-4927 fax: (406) 862-4963 www.riverdesigngroup.net		 <b>RIVER DESIGN GROUP, INC.</b>	
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				3	10-14-05	KLC	FINAL																				
				2	08-29-05	MSD	ALIGNMENT D SHOWN																				
1	04-13-05	MSD	DRAFT																								
DESIGNED BY:	GTD																										
CHECKED BY:	MSD	FILE NAME:	design plan view.dwg																								
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**Legend**

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500 0 250 500

SCALE: 1" = 500'

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2	10-14-05	KLC	FINAL
1	04-13-05	MSD	DRAFT

**PLAN VIEW - CFR 3a**

**RESTORATION PLAN**

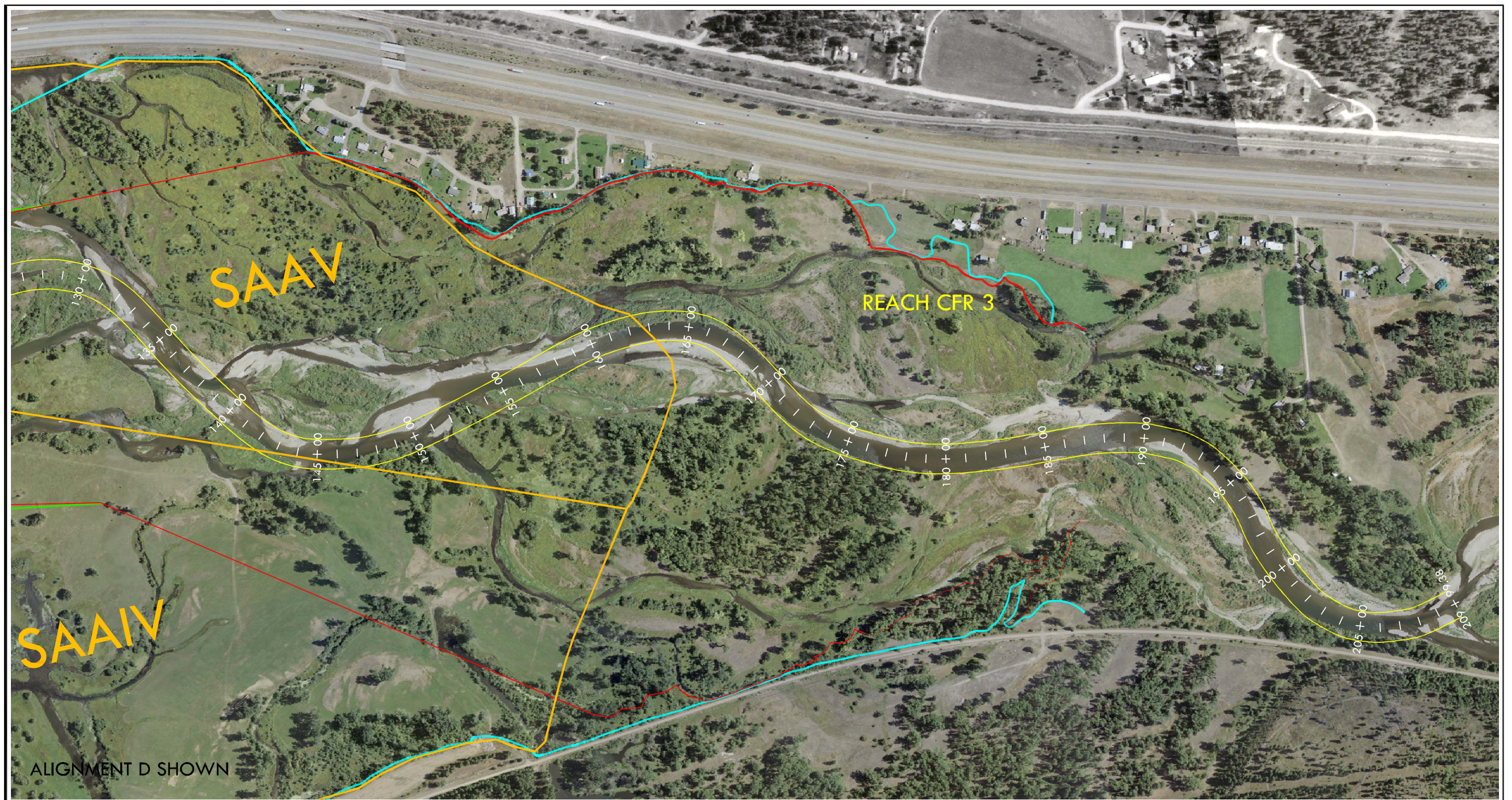
DRAWN BY:	NMW	<b>SHEET 1-3</b>	
DESIGNED BY:	GTD		
CHECKED BY:	MSD		
PROJECT NO.:	RDG-04-018		







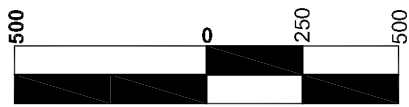


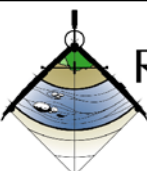
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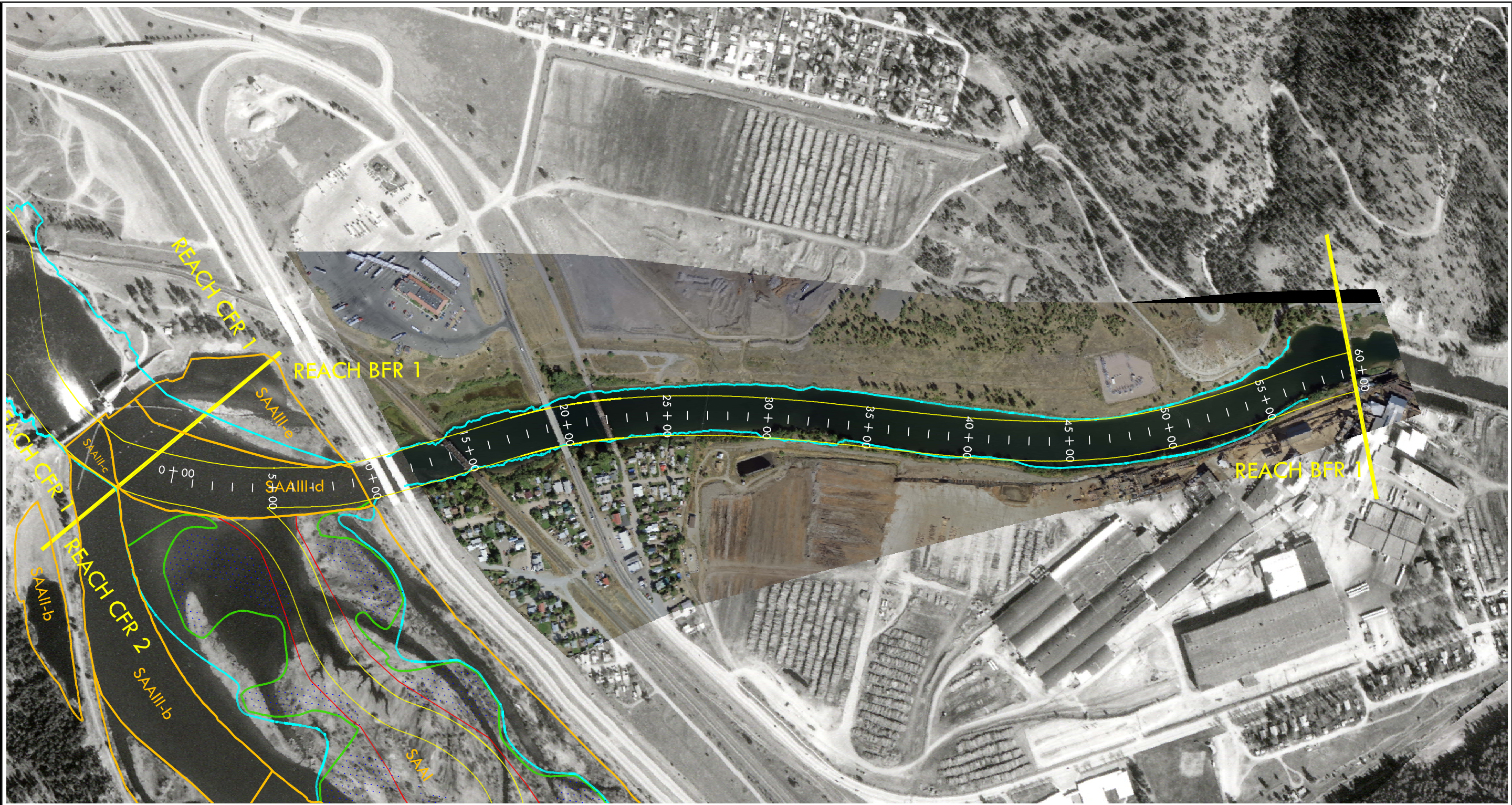
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<b>Legend</b>  Wetlands  Bankfull Channel  Bankfull Floodplain  Approximate 100 yr Floodplain  Low Terrace  SAA Sediment Accumulation Areas	 SCALE: 1" = 500'				<b>PLAN VIEW - CFR 3b</b>				<b>WestWater Consultants, Inc.</b> 1112 Catherine Lane Corvallis, MT 59828 tel: (406) 961-3348		 <b>WestWater Consultants, Inc.</b>												
					<b>RESTORATION PLAN</b>																		
					DRAWN BY:	NMW	<b>SHEET 1-4</b>		<b>River Design Group, Inc.</b> P.O. Box 1722 Whitefish, MT 59937 tel: (406) 862-4927 fax: (406) 862-4963 www.riverdesigngroup.net		 <b>RIVER DESIGN GROUP, INC.</b>												
					DESIGNED BY:	GTD						FILE NAME:	design plan view.dwg										
				CHECKED BY:	MSD																		
				PROJECT NO.:	RDG-04-018																		
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500 0 250 500

SCALE: 1" = 500'

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**PLAN VIEW - BFR 1**

**RESTORATION PLAN**

DRAWN BY:	NMW	<b>SHEET I-5</b>	
DESIGNED BY:	GTD		
CHECKED BY:	MSD	FILE NAME:	
PROJECT NO.:	RDG-04-018	design plan view.dwg	

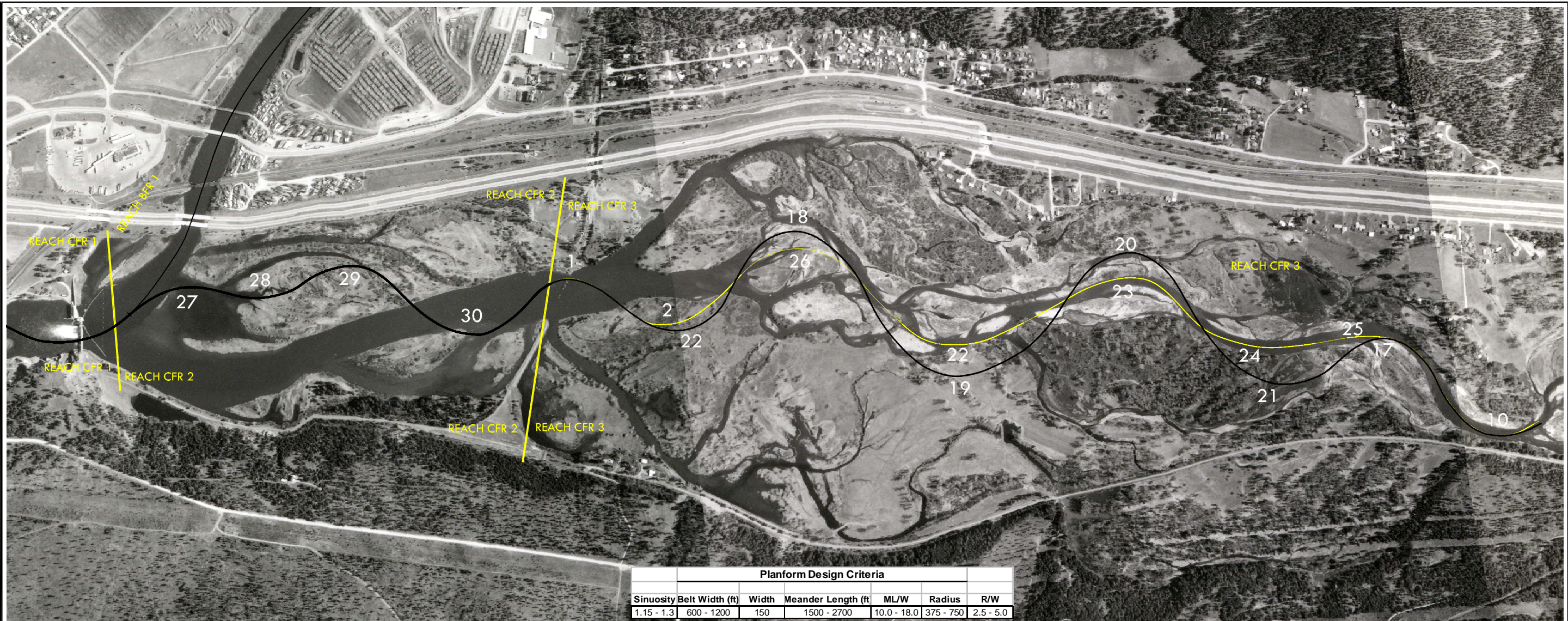
**WestWater Consultants, Inc.**  
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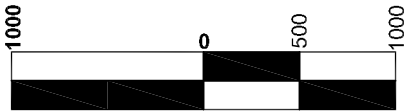




Planform Design Criteria						
Sinuosity	Belt Width (ft)	Width	Meander Length (ft)	ML/W	Radius	R/W
1.15 - 1.3	600 - 1200	150	1500 - 2700	10.0 - 18.0	375 - 750	2.5 - 5.0

Alignment	Sinuosity	Belt Width (ft)	Meander	Meander Length (ft)	ML/W	Radius	R/W
C	1.23	722	27	1370	9.1	750	5.0
			28	1575	10.5	750	5.0
			29	2100	14.0	575	3.8
			30	2050	13.7	625	4.2
			1	1875	12.5	700	4.7
			2	1742	11.6	580	3.9
			18	2737	18.2	500	3.3
			19	3200	21.3	900	6.0
			20	3200	21.3	500	3.3
			21	2612	17.4	710	4.7
			17	2220	14.8	450	3.0
			10	N/A	N/A	500	3.3
			Average	2243.7	15.0	628.3	4.2

Alignme nt	Sinuosity	Belt Width (ft)	Meander	Meander Length (ft)	ML/W	Radius	R/W
D	1.15	719	1	1875	12.5	700	4.7
			2	1742	11.6	580	3.9
			26	2820	18.8	500	3.3
			22	3240	21.6	650	4.3
			23	2860	19.1	630	4.2
			24	2620	17.5	1200	8.0
			25	2480	16.5	740	4.9
			10	N/A	N/A	500	3.3
			Average	2519.6	16.8	687.5	4.6



SCALE: 1" = 1000'

### PROPOSED CFR ALIGNMENTS AND MEANDER GEOMETRY

### RESTORATION PLAN

WestWater Consultants, Inc.  
1112 Catherine Lane  
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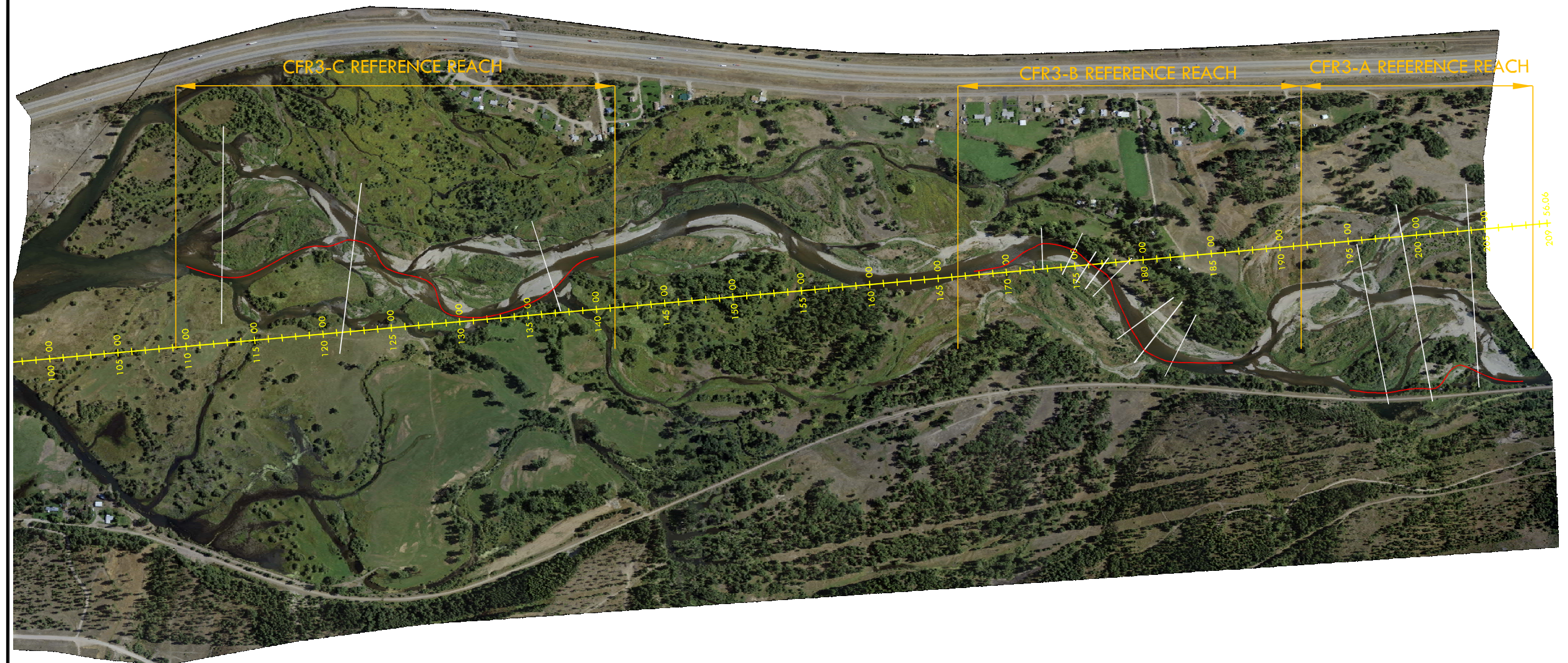
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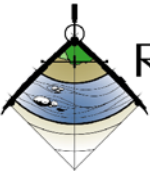


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1	04-13-05	MSD	DRAFT

DRAWN BY:	NMW	SHEET I-6	
DESIGNED BY:	GTD		
CHECKED BY:	MSD	FILE NAME:	
PROJECT NO.:	RDG-04-018	design plan view.dwg	





<div>— REFERENCE CROSS SECTION LOCATION</div> <div>— REFERENCE PROFILE</div> <div>— VALLEY PROFILE</div>	<div><div>80000400800</div><div>SCALE: 1" = 800'</div></div>			<b>CFR3 REFERENCE REACHES</b>			<div>WestWater Consultants, Inc. 1112 Catherine Lane Corvallis, Montana 59828 tel: (406) 961-3348</div> <div> <b>WestWater Consultants, Inc.</b></div>
				<b>RESTORATION PLAN</b>			
				DRAWN BY: MSD	<b>SHEET I-7</b>		<div>River Design Group, Inc. P.O. Box 1722 Whitefish, MT 59937 tel: (406) 862-4927 fax: (406) 862-4963 www.riverdesigngroup.net</div> <div> <b>RIVER DESIGN GROUP, INC.</b></div>
				DESIGNED BY: GTD/MSD			
110-12-05MSDDRAFT			CHECKED BY: GTD/MSD				
NO. DATE BY REVISION DESCRIPTION			PROJECT NO.: RDG-04-018				